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EXAMINER

ROSARIO, DENNIS

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/020,031

Applicant(s)

GALLAGHER ET AL.

Examiner

Dennis Rosario

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-16, 20-26 and 28-30 is/are rejected.
- 7) ☒ Claim(s) 11, 17-19 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/10/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment was received on February 10, 2005. Claims 1-30 are pending.

Response to Arguments

2. Applicant's arguments filed 2/10/2005 have been fully considered but they are not persuasive.

Page 8 of the remarks states, "Claim 1 requires that a belief map includes belief values indicating the likelihood that respective pixels are representative of a particular material." However, Savakis does disclose a belief map (As shown in fig. 9, num. S212: BELIEF MAP) includes belief values (As shown in fig. 9, num. S212: BELIEF MAP that includes belief values from fig. 9, numerals S208a: SEMANTICE FEATURE EXTRACTION and S208b: STRUCTURAL FEATURE EXTRACTION.) indicating the likelihood that respective pixels are representative of a particular material (As shown in fig. 9, num. S212: BELIEF MAP that includes belief values from fig. 9, numerals S208a: SEMANTICE FEATURE EXTRACTION and S208b: STRUCTURAL FEATURE EXTRACTION where numeral S208b indicates the likelihood or "probability" in col. 18, line 19 that respective pixels or "correspond[ing]...pixels" in col. 18, line 19 are representative of a particular material or "main subject" in col. 18, line 20.).

Page 9 of the remarks states, "Claim 1 also requires that the belief map of a single image includes multiple belief values." Savakis does disclose the belief map as shown in fig. 9, num. S212: BELIEF MAP of a single image, fig. 9, num. S200: SCENE includes multiple belief values or "regions" in col. 18, line 17.

Also, page 9 of the remarks states, "Claim 1 also requires that the belief map corresponds spatially to image pixels." Savakis does disclose that the "belief map" in col. 18, line 15 as shown in fig. 9, num. S212: BELIEF MAP "correspond[s]" in col. 18, line 19 spatially via "three regions" in col. 18, line 17 to image "pixels" in col. 18, line 19.

3. Applicant's arguments, see amendment, page 10, filed 2/10/2005, with respect to claim 10 have been fully considered and are persuasive. The rejection of claim 10 has been withdrawn.

4. Upon further review of the Savakis reference and amendment, applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Double Patenting

5. Claims 1-30 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 4, 5, 6, 9, 10, 17, 19, 23, 24, 25 and 26 of copending Application No. 10/016,601. Due to the amendment of copending Application No. 10/016,601 the rejection of claims 1-30 is withdrawn.

Specification

6. Page 9, line 20 has an equation with unfamiliar mathematical notation "0 01". Please provide an explanation of this notation or the correct notation.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claim 15 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 15 is drawn to functional descriptive material NOT claimed as residing on a computer readable medium. MPEP

2106.IV.B.1(a) (Functional Descriptive Material) states:

“Data structures not claimed as embodied in a computer-readable medium are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer.”

“Such claimed data structures do not define any structural or functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure’s functionality to be realized.”

Claim 15, while defining a program product, does not define a “computer-readable medium” and is thus non-statutory for that reasons. A program product can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on “computer-readable medium” in order to make the claim statutory.

“In contrast, a claimed computer-readable medium encoded with the data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure’s functionality to be realized, and is thus statutory.” - MPEP 2106.IV.B.1(a)

Claim 15 ought to be amended to:

A computer **readable** program product **stored on a computer readable medium** for performing the method claimed in claim 1.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1,2,3,4,5,16,20,21 and 22 are rejected under the judicially created doctrine of double patenting over claims 1-4 of U. S. Patent No. 6,891,977 B2 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows:

Claims 5 and 22 of the instant application has the phrase "noise parameter" which corresponds to "a noisy belief map" of claim 1, step b) of USP 6,891,977.

Claims 3 and 4 of the instant application corresponds to claim 3 of USP 6,891,977.

Claims 2 and 21 of the instant application corresponds to claim 2 of USP 6,891,977.

Claims 1 and 20 of the instant application has the phrase, "wherein the improvement parameter is proportional to the belief values" corresponds to claim 4, lines 1-3, "wherein the gain map is modified so that gain values [or the claimed improvement parameter of the instant application] do not exceed a predetermined limit in areas...[of the]...noisy pixel belief map..." of USP 6,891,977. Thus, gain values can be modified to any value within a predetermined limit or can be modified proportionally to within a predetermined limit based on areas of the noisy pixel belief map.

Claim 16, last two lines of the instant application corresponds to claim 1, step c) of USP 6,891,977.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1,5-7,9,10,14,15,20,22-26 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Qian (US Patent 6,707,940 B1).

Regarding claim 20, Qian discloses a system for improving a characteristic of an image according to its material content, said system comprising:

a) an image generator providing an image (A “camera” in col. 1, line 56 is an image generator that provides an image, fig. 6, label “original image.”.) comprised of image pixels (Fig. 6, label “original image” and in col. 4, line 25 is provided or inputted that comprises image “pixel[s]” in col. 4, line 25 .) ;

b) a material detector generating a belief map (Fig. 4,num. 300: image segmenter is a material detector that generates a belief map or as shown in fig. 4 a “segmentation map.”) corresponding spatially (Fig. 4,num. 300: image segmenter generates a belief map or as shown in fig. 4 a “segmentation map” that corresponds spatially to an “area” in col. 4, line 26.) to the image pixels (Fig. 4,num. 300: image segmenter generates a belief map or as shown in fig. 4 a “segmentation map” that “correspond[s]” in col. 4, line 25 spatially to an “area” in col. 4, line 26 to the image pixels as shown in fig. 1 as squares labeled with “p”)., wherein the belief map (Shown in fig. 4 a “segmentation map.”)...

... includes belief values (Shown in fig. 4 a "segmentation map" that includes belief values or "value of a pixel" in col. 4, line 24 as shown in fig. 1 as squares labeled with "p.") indicating the likelihood that respective pixels are representative of a particular material (Shown in fig. 4 a "segmentation map" that includes belief value or "value of a pixel" in col. 4, line 24 as shown in fig. 1 as squares labeled with "p" indicating the "likelihood" in col. 4, line 24 that respective or "corresponding pixel[s]" in col. 4, line 25 are representative of a particular material or "object" in col. 4, line 26.);

c) a map analyzer generating an improvement parameter (Fig. 1,num. 150: gradient calculator is a map analyzer that generates an improvement parameter as shown by the output arrow of fig. 1,num. 150: gradient calculator.) from the belief values (Fig. 1,num. 150: gradient calculator generates an improvement parameter as shown by the output arrow of fig. 1,num. 150: gradient calculator from the belief values or "value of a pixel" in col. 4, line 24.) of the belief map (Fig. 1,num. 150: gradient calculator generates an improvement parameter as shown by the output arrow of fig. 1,num. 150: gradient calculator from the belief values or "value of a pixel" in col. 4, line 24 of the belief map as shown in fig. 4 a "segmentation map." and in fig. 1 as squares labeled with "p."), wherein the improvement parameter (The output arrow of fig. 1,num. 150: gradient calculator.) is proportional (The output arrow of fig. 1,num. 150: gradient calculator corresponds to an equation, " p_i ", in column 2 which is proportional to two variables Δ_i and R_p .)...

... to the belief values (The improvement parameter or output arrow of fig. 1,num. 150: gradient calculator corresponds to an equation, " p_i ", in column 2 which is proportional to two variables Δ_i and R_p where Δ_i corresponds to belief values or "value of a pixel" in col. 4, line 24.) and applied uniformly (The improvement parameter or output arrow of fig. 1,num. 150: gradient calculator corresponds to an equation, " p_i ", in column 2 which is proportional to two variables Δ_i and R_p where Δ_i corresponds to belief values or "value of a pixel" in col. 4, line 24 and is applied in fig. 1,num. 200: pixel value calculator uniformly as shown by the topmost equation of column 3.) to the image pixels (The improvement parameter or output arrow of fig. 1,num. 150: gradient calculator corresponds to an equation, " p_i ", in column 2 which is proportional to two variables Δ_i and R_p where Δ_i corresponds to belief values or "value of a pixel" in col. 4, line 24 and is applied via and "X" operator in fig. 1,num. 200: pixel value calculator uniformly to the image pixels " $p(x,y)$ ", which are the pixels of fig. 1 shown as squares labeled with " p .", and shown by the topmost equation of column 3.); and

d) a processor using the improvement parameter (Fig. 4, num. 400: image smoother is implemented with a "micro-processor" in col. 6, lines 55,56 and uses the improvement parameter, " p_i .") to improve the characteristic of the image (Fig. 4, num. 400: image smoother uses the improvement parameter, " p_i " to improve or "reduce" in col. 5, line 41 the characteristic or "errors" in col. 5, line 41 of the image or "original image" in col. 4, line 25).

Claim 1 is rejected the same as claim 20. Thus, argument similar to that presented above for claim 20 of a system claim is equally applicable to claim 1 of a method claim.

Regarding claim 5, Qian discloses the method as claimed in claim 1 wherein the characteristic (The "errors" in col. 5, line 41.) is noise (The "errors" in col. 5, line 41 is noise or "artifacts" in col. 5, line 46.) and the improvement parameter (The improvement parameter " p_i ") is a noise parameter (The improvement parameter " p_i " is a noise parameter because " p_i " is used in the operation of fig. 4, num. 400: image smoother to "eliminate...artifacts" in col. 5, lines 45,46.).

Regarding claim 6, Qian discloses the method as claimed in claim 5 wherein the step of using the improvement parameter (Fig. 4, num. 400: image smoother uses the improvement parameter, " p_i .") comprises:

a) performing noise reduction (" p_i " is used in the operation of fig. 4, num. 400: image smoother to "eliminate...artifacts" in col. 5, lines 45,46) with a sigma filter (" p_i " is used in the operation of fig. 4, num. 400: image smoother to "eliminate...artifacts" in col. 5, lines 45,46 with a filter 100 of fig. 3. and shown in fig. 1,num. 100 as the filter of fig. 3.).

Regarding claim 7, Qian discloses the method as claimed in claim 1 wherein the step of generating a belief map (Fig. 4, num. 300: image segmenter generates a belief map or as shown in fig. 4 a "segmentation map.") comprises the steps of:

a) detecting pixels (Fig. 4, num. 300: image segmenter detects or segments which is a form of detecting pixels from an "original image" of fig. 4.) that represent the particular material (Fig. 4, num. 300: image segmenter detects or segments which is a form of detecting pixels from an "original image" of fig. 4 that represent the particular material or "object" in col. 4, line 26.); and

b) producing a belief map (Fig. 4, num. 300 produces a belief map or "segmentation map" as shown in fig. 4.) from the detected pixels (Fig. 4, num. 300 produces a belief map or "segmentation map" as shown in fig. 4 from the detected or segmented pixels of the "original image" as show in fig. 4.).

Regarding claim 9, Qian discloses the method as claimed in claim 1 wherein the improvement parameter (The improvement parameter, " ρ_i ") is proportional to a maximum belief value (The improvement parameter, " ρ_i " is proportional to a maximum belief value or "highest possible value" in col. 2, line 56.).

Regarding claim 10, Qian discloses the method as claimed in claim 1 wherein the improvement parameter (The improvement parameter, " ρ_i ." is proportional to an average belief value (The improvement parameter, " ρ_i " as shown in the equation of column 3 as the third term is proportional to an average belief value or "average of...neighbors" in col. 3, lines 24,25 which is the second term. Note that the neighbors are belief values or "value of a pixel" in col. 4, line 24.).

Regarding claim 14, Qian discloses the method ms claimed in claim 1 wherein the image (Fig. 6, label "original image" is provided or inputted.) is a color image (Fig. 6, label "original image" is provided or inputted as a color image as mentioned in column 4.) comprised of a plurality of separate signal channels (Fig. 6, label "original image" is provided or inputted as a color image as mentioned in column 4 comprised of a plurality of separate signal channels or "three components" in col. 4, lines 39,40.) and the belief map (The belief map or as shown in fig. 4 a "segmentation map.") is generated from a selected signal channel (The belief map or as shown in fig. 4 a "segmentation map." Is generated from a selected signal channel "separately and in a different fashion to one or more of the individual component planes...(col. 4, lines 12,13)", where the component planes corresponds to the previously mentioned three components.).

Regarding claim 15, Qian discloses a computer program product ("software program" in col. 6, line 53) for performing the method claimed in claim 1.

Claim 22 are rejected the same as claim 5. Thus, argument similar to that presented above for claim 5 is equally applicable to claim 22.

Claim 23 is rejected the same as claim 7. Thus, argument similar to that presented above for claim 7 is equally applicable to claim 23.

Claim 24 is rejected the same as claim 8. Thus, argument similar to that presented above for claim 8 is equally applicable to claim 24.

Claim 25 is rejected the same as claim 9. Thus, argument similar to that presented above for claim 9 is equally applicable to claim 25.

Claim 26 is rejected the same as claim 10. Thus, argument similar to that

presented above for claim 10s equally applicable to claim 26

Claim 28 is rejected the same as claim 12. Thus, argument similar to that presented above for claim 12 is equally applicable to claim 28.

Claim 29 is rejected the same as claim 13. Thus, argument similar to that presented above for claim 13 is equally applicable to claim 29.

Claim 30 is rejected the same as claim 14. Thus, argument similar to that presented above for claim 14 is equally applicable to claim 30.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 2,16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qian (US Patent 6,707,940 B1) in view of Maurer et al. (US Patent 6,731,821 B1).

Regarding claim 21, Qian teaches the system as claimed in claim 20 wherein the characteristic is sharpness ("sharpness" in col. 5, line 43) and the improvement parameter is a smoothing parameter (The improvement parameter as shown by the output arrow of fig. 1,num. 150: gradient calculator is a smoothing parameter as shown in fig. 9, num. 400: image smoother).

Claim 16 is rejected the same as claim 20. Thus, argument similar to that presented above for claim 20 of a system is equally applicable to claim 16 of a method except for the limitation of generating a sharpening parameter and using the sharpening parameter.

Qian does not teach the limitation of a sharpening parameter, but does teach preserving "sharpness" in col. 5, line 43 using a smoothing operation as shown in fig. 9, num. 400: image smoother and successive image process steps 600 and 500.

However, Maurer et al. does teach an image smoother with successive image process steps as shown in fig. 1, numerals 10,11 as suggested by Qian and teaches claim 21 wherein the characteristic is sharpness (PRESERVING EDGES in fig. 1,num. 10 is a characteristic of sharpness.) and the improvement parameter is a sharpening parameter (Fig. 1, num. 11: SELECTIVELY SHARPEN SMOOTHED IMAGE I' USING VARIABLE CONTRAST STRETCHING is the improvement parameter that is a sharpening parameter.).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Qian's teaching of preserving edges and successive image process steps with Maurer et al.'s teaching of PRESERVING EDGES in fig. 1,num. 10 with Maurer et al.'s fig. 1,num. 11: SELECTIVELY SHARPEN SMOOTHED IMAGE I' USING VARIABLE CONTRAST STRETCHING, because Maurer et al.'s fig. 1,num. 11: SELECTIVELY SHARPEN SMOOTHED IMAGE I' USING VARIABLE CONTRAST STRETCHING "enhance[es] image quality" in col. 2, line 18 and this will help accomplish the goal in Qian of preserving edges.

Claim 2 is rejected the same as claim 21. Thus, argument similar to that presented above for claim 21 is equally applicable to claim 2.

15. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qian (US Patent 6,707,940 B1) in view of Maurer et al. (US Patent 6,731,821 B1) further in view of Gouch et al. (US Patent 5,682,443 A).

Regarding claim 3, the combination of Maurer et al. does not teach the limitation of claim 3, but does teach "sharpening techniques" in col. 1, line 33 which suggests other sharpening techniques.

Gouch et al. teaches a sharpening technique as suggested by Maurer et al. and teaches claim 3 of a method wherein a step of using (Fig. 4, num. 32 and 36 are look up tables) an improvement parameter (Uc is an enhanced signal (col. 1, line 59) due to an unsharp masking operation described in col. 1, line 32-59.) comprises:

a) performing sharpening (Uc corresponds with equation "P" of column 1 which includes a sharp signal "S" in col. 1, line 54) with an unsharp mask operation (Equation "P" is an unsharp masking operation.).

Regarding claim 4, Gouch et al. discloses the method as claimed in claim 3 wherein the sharpening parameter (sharp signal C'S" in col. 1, line 54) is a scale factor ("S" is multiplied by a weight "K" in col. 1, line 58 in equation "P") used in the unsharp mask operation (Equation "P" is an unsharp masking operation.).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Maurer et al.'s teaching of sharpening techniques with Gouch et al.'s teaching of unsharp masking, because Gouch et al.'s teaching sharpens "edges and enhance fine detail by means of unsharp masking (USM) (col. 1, lines 10, 11)."

16. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Qian (US Patent 6,707,940 B1) in view of Jamzadeh (US Patent 5,889,578 A).

Regarding claim 8, Qian discloses the method as claimed in claim 1 wherein:

- a) the particular material (The particular material or "object" in col. 4, line 26.) is selected from the group (The particular material or "object" in col. 4, line 26 is selected or "predetermined...set of objects" in col. 4, line 26.) including faces, flesh, sky and vegetation and
- b) the improvement parameter (The improvement parameter, " p_i ") conditions the amount of improvement (The improvement parameter, " p_i " conditions the amount of improvement using the topmost equation of column 3 to calculate the amount of improvement.) upon a characteristic (The improvement parameter, " p_i " conditions the amount of improvement using the topmost equation of column 3 to calculate the amount of improvement upon a "binary" in col. 4, line 28 characteristic.) of the belief values (The improvement parameter, " p_i " conditions the amount of improvement using the topmost equation of column 3 to calculate the amount of improvement upon a "binary" in col. 4, line 28 characteristic of the belief values or "value of a pixel" in col. 4, line 24.)...

... in the belief map (The improvement parameter, " p_i " conditions the amount of improvement using the topmost equation of column 3 to calculate the amount of improvement upon a "binary" in col. 4, line 28 characteristic of the belief values or "value of a pixel" in col. 4, line 24 in the belief map or "segmentation map" in col. 4, line 27.) that represent the particular material (The improvement parameter, " p_i " conditions the amount of improvement using the topmost equation of column 3 to calculate the amount of improvement upon a "binary" in col. 4, line 28 characteristic of the belief values or "value of a pixel" in col. 4, line 24 in the belief map or "segmentation map" in col. 4, line 27 that represent the particular material or "object" in col. 4, line 29.).

Qian does not teach the limitation of the group including faces, flesh, sky and vegetation, but does suggest a set of objects, which can be anything.

Jamzadeh teaches, in the same field of endeavor of identifying features of an image, an object as taught by Qian as shown in the Jamzadeh reference in fig. 9, label "OBJECTS..." which is in the same category as NATURE SCENERY and PEOPLE(PERSON), thus Jamzadeh teaches the limitation of claim 8 of a particular material is selected from the group including faces (Fig. 9, label: PEOPLE (PERSON)), flesh ("skin tone" in col. 7, line 7), sky and vegetation (Fig. 9, label: NATURE SCENERY).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Qian's teaching of a set of objects with Jamzadeh's teaching of Fig. 9, labels: PEOPLE (PERSON) and NATURE SCENERY and skin tone, because

Jamzadeh's teaching are standard objects to one of ordinary skill in the art to detect features of an image.

17. Claims 12,13,28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qian (US Patent 6,707,940 B1) in view of Matsugu et al. (US Patent 6,453,069 B1).

Regarding claim 12, Qian teaches the method of claim 1 wherein the belief map is generated (The belief map or as shown in fig. 4 a "segmentation map" is generated using fig. 4,num. 300: image segmenter.) from a low resolution version of the image (The belief map or as shown in fig. 4 a "segmentation map" is generated using fig. 4,num. 300: image segmenter from an original image and background image as shown in fig. 1.).

Qian does not teach the limitation of a low resolution version of the image, but does suggest resizing images during a "superpimposition" in col. 6, line 29 operation since a superimposition operation would require two images as shown in fig. 4, labels "original image" and "background image" of the same size.

Matsugu et al., in the similar field of endeavor of determining objects with an image, teaches two images of the same size obtained using a "normaliz[ation]" in col. 25, line 9 operation.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Qian's "original image" and "background image" with Matsugu et al.'s "normaliz[ation]," because Matsugu et al.'s "popular" in col. 1, line 55 "normaliz

[ation]" in col. 1, line 60 method of two images allows for "identifying or recognizing a specific object (col. 1, lines 54,55)."

Claims 13, 28 and 29 are rejected the same as claim 12. Thus, argument similar to that presented above for claim 12 is equally applicable to claims 13, 28 and 29.

Allowable Subject Matter

18. Claims 11,17,18,19 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

19. The following is a statement of reasons for the indication of allowable subject matter:

Claim 11 is allowable over the prior art because the prior art does not teach the limitation of where the improvement parameter is proportional to the size of at least one of the belief regions. The closest prior art, Qian teaches "connected components" as shown in fig. 7,num. P210 which corresponds to the claimed improvement parameter, but the connected components are thresholded based on size as shown in fig. 7, num. P220.

Claim 17 is allowable over the prior art because the prior art does not suggest the limitation of flesh, sharpening and belief values within the environment of claim 16 to make a proper combination. Thus, dependent claim 18 is allowable.

Claims 19 and 27 are allowable for the same reasons as claim 11.

Conclusion

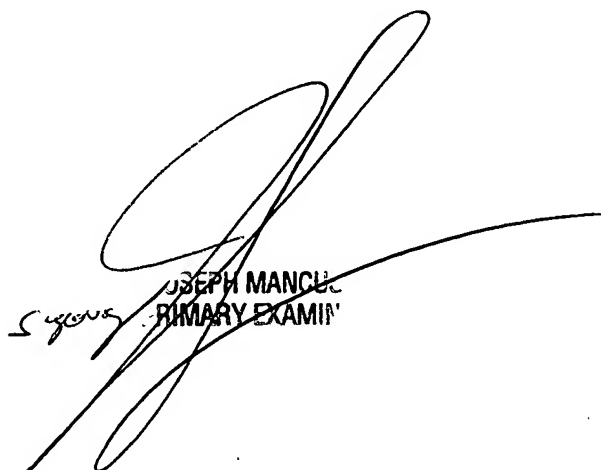
20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 6-3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571)272-7695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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